

# Usage

The LATS API consists of eleven functions. Detailed information on each of these functions is contained in the [man page](#). An outline of a LATS program, including reference to several LATS functions, is given below:

1. Specify an external [parameter table file](#), with `lats_parmtab`.
2. Define all grid(s), with `lats_grid`.
3. Define all vertical dimensions (e.g., pressure level) with `lats_vert_dim`. If a default surface dimension is defined for a variable, it does not have to be redefined with `lats_vert_dim`. Grids and vertical dimensions may be shared across variables and files. NOTE: At present, only one grid may be defined per GrADS/GRIB file.
4. Create a LATS file, with `lats_create`. Optionally set the basetime, with `lats_basetime`
5. For each variable to be written to the file, declare the variable with `lats_var`. (Note: This is required even if the variable has been declared for a different file). If there is a missing data flag, define it with `lats_miss_float` or `lats_miss_int`.
6. For each time–point, in increasing time order: For each horizontal level of each variable: Write the data for this level, time–point, with `lats_write`.
7. Close the file, with `lats_close`.

It is possible to write structures other than fully 2–D horizontal longitude–latitude grids. For example, to write zonal mean vs. height cross sections, the grid must be defined as containing a single longitude (a dummy value) in `lats_grid`. One latitude grid (a 1–D array) at each level would be written with `lats_write`.

The LATS distribution comes with a sample [FORTRAN code](#) and [detailed instructions](#) on creating LATS applications. This program is used to verify that LATS is working properly on your system. Furthermore, the distribution is self contained, i.e., all materials needed for creating LATS applications are included, ranging from the libraries and utilities to documentation on setup and application building. Consult the LATS [man page](#) for a detailed description of the LATS programming interface.